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मत्स्य जाल — जाल का साईज ज्ञात करने के लिए परीक्षण पद्धति — जाल का छिद्र

Indian Standard

FISHING NETS — METHOD OF TEST FOR THE DETERMINATION OF MESH SIZE — OPENING OF MESH

ICS 65.150

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

July 2008 **Price Group 2**

Textile Materials for Marine/Fishing Purposes Sectional Committee, TXD 18

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Materials for Marine/Fishing Purposes Sectional Committee had been approved by the Textile Division Council.

This standard is based on ISO 16663-1: 2003 'Fishing nets — Method of test for the determination of mesh size — Part 1: Opening of mesh'.

In this standard Annex A is informative.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FISHING NETS — METHOD OF TEST FOR THE DETERMINATION OF MESH SIZE — OPENING OF MESH

1 SCOPE

This standard specifies a method for the determination of size of opening of the mesh of fishing nets using a flat wedge gauge. It is applicable to active as well as passive fishing gears.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
4402 : 2005/ ISO 1107 : 2003	Fishing nets — Netting — Basic terms and definitions (*second revision*)
6359 : 1971	Method for conditioning of textiles

3 TERMINOLOGY

For the purpose of this standard, the following terms and definitions shall apply.

3.1 Active Fishing Gear — A fishing gear requiring movement to catch the fish.

NOTE — In general a mobile fishing equipment (that is, mobile relative to the ground or water column) led into the path of the fish to pursue and catch it. All trawls, dredges, seine nets, purse seines and other surrounding nets are examples of active gears.

3.2 Danish Seine — Funnel-shaped net (with wings and codend) with ropes set out on the sea bed and hauled to a vessel in the open sea.

3.3 Passive Fishing Gear — Fishing gear requiring action of the fish to catch it.

NOTE — Mostly stationary often, but not always, are anchored at the sea bed. Gill nets and entangling nets are examples of passive gears.

3.4 Purse Seine — Large single panel multi-section net used to encircle shoaling fish, the bottom of which is drawn together to enclose them.

3.5 Trawl — Towed net consisting of a cone-shaped body, closed by a bag or codend extended at the opening by wings.

NOTE — Net may be towed by one or two boats and, according to the type, is used on the bottom or in mid water/or pelagic.

4 PRINCIPLE

A flat wedge gauge is inserted perpendicularly to the netting plane in the N-direction for knotted netting or along the longest possible axis for knotless netting in accordance with IS 4402, by applying a constant force. The mesh size corresponds to the graduation on the gauge.

5 APPARATUS

5.1 The mesh gauges shall be made of a non-corrosive metallic alloy with a surface coating (*see* Fig. 1).

The gauges shall be 2 mm thick, flat and shall have 2 tapering edges with a taper of one to eight. They shall have a hole at the narrow end. The edges of the gauges shall be rounded with a radius of 1 mm.

5.2 Either printed or engraved markers ending 2 mm from the edges shall be used. The scale shall be graduated at intervals of 1 mm, 5 mm and 10 mm. No markers shall be used on the last 50 mm at the narrow end of the gauge.

5.3 Four sizes of gauge are required to cover the full range of mesh sizes:

a) Size from 10 mm to 70 mm,
b) Size from 60 mm to 120 mm,
c) Size from 110 mm to 170 mm, and
d) Size from 150 mm to 250 mm.

6 MEASURING FORCE

For netting of a mesh size of 50 mm or less, a force equivalent to a mass of 2 kg shall be applied. For netting of a mesh size above 50 mm up to 120 mm, a force equivalent to a mass of 5 kg shall be applied and for netting of a mesh size above 120 mm, a force equivalent to a mass of 8 kg shall be applied.

NOTE — This force can be applied by using a weight corresponding to the mass described above or any other device as agreed between the interested parties.

7 REQUIREMENTS FOR TESTING

7.1 General

NOTE — Tests may be carried out in both the dry and wet states, but tests in the wet state are considered to be particularly appropriate in indicating the behaviour of the netting in use.

7.2 Atmosphere for Testing

All specimens to be tested in the dry state shall be exposed to the standard atmosphere for testing specified in IS 6359, until they have reached equilibrium. Where it is not possible to carry out the tests in the standard atmosphere the tests shall be carried out immediately after removal of the samples from the standard atmosphere.

7.3 Testing in the Wet State

Specimens to be tested in the wet state shall either be:

- a) immersed in tap water of 20 ± 2°C for not less than 12 h; or
- b) immersed in a solution of wetting agent at a temperature of 20 ± 2°C for not less than 1 h.

8 PROCEDURE

8.1 Straighten the netting in the N-direction for knotted netting and in the direction of the longest axis for knotless netting according to IS 4402.

8.2 Insert a gauge (*see* **5.1**) by its narrow end into the mesh opening perpendicular to stretched netting plane.

8.3 Insert the gauge into the mesh at its widest opening using a measuring force (*see* **6**) until it is stopped by the resistance of the mesh.

8.4 Measure a minimum of 20 consecutive meshes.

8.5 The size of each mesh shall be the width of the gauge at the point where the gauge is stopped, when using this gauge in accordance with **8.1**, **8.2** and **8.3**. The width shall be read at the top of the twine making sure that the same readings are obtained at both edges of the gauge.

9 CALCULATION AND EXPRESSION OF RESULTS

Record the size of opening of the mesh in millimetres for each measurement and calculate the average size of opening of the mesh rounded up to the next millimetre.

10 TEST REPORT

The test report shall include the following:

- a) Description of the twine including the material and the type of yarn (twisted, or braided), the type of netting (knotted or knotless), the mesh size, the nominal linear density of the twine as per IS 4402;
- b) Average size of opening of the mesh in millimetres;
- c) Measuring force used;
- d) Number of measurements;
- e) State of the netting (dry or wet);
- f) Coefficient of variation and the confidence interval; and
- g) Any deviation from the specified test procedure.

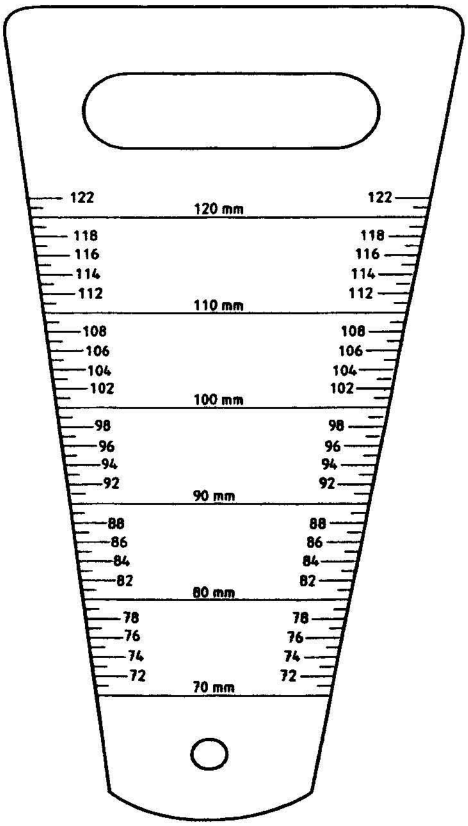

FIG. 1 MESH GAUGE

ANNEX A

(Foreword)

(FOR INFORMATION ONLY)

METHOD SUITABLE FOR ALL ENVIRONMENTAL CONDITIONS

A-1 The method of test for the determination of the mesh opening is drawn upon International legislation for the purpose of fisheries inspection [for example Commission Regulation (EEC) No. 129/2003 of 24 January 2003 laying down detailed rules for determining the mesh size of fishing nets]. Recently the methodology using the flat wedge gauge has been questioned. The method is considered as not sufficiently precise and objective, especially when using hand force to operate the mesh gauge. The present standard has taken account of the criticism towards the wedge gauge by giving a more precise description of the mesh gauges and by using a weight only to exert the measuring force. The method described in the standard is appropriate for the determination of the mesh opening under controlled laboratory conditions but it is considered as being less suitable for use at sea.

It is the intention to modify the present standard as soon as a method suitable for all environmental conditions becomes available.

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Textile Materials for Marine/Fishing Purposes Sectional Committee, TXD 18

Organization	*Representative(s)*
Fisheries Development Commissioner, Ministry of Agriculture, New Delhi	SHRI M. K. R. NAIR (***Chairman***) SHRI R. S. SISODIA (*Alternate*)
Association of Indian Fishery Industries, New Delhi	SHRI T. RAGHUNATH REDDY DR C. BABU RAO (*Alternate*)
Central Institute of Fisheries Nautical & Engineering Training, Cochin	SHRI P. M. SALIM
Central Institute of Fisheries Technology, Cochin	DR B. MEENA KUMARI SMT SALY N. THOMAS (*Alternate*)
Fisheries Survey of India, Mumbai	DR V. S. SOMVANSHI SHRI M. E. JOHN (*Alternate*)
Garware-Wall Ropes Ltd, Mumbai	SHRI R. M. TELANG SHRI S. V. RAUT (*Alternate*)
Indian Fishnet Manufacturers Association, Chennai	SHRI M. K. UNNI KRISHNAN
Integrated Fisheries Project, Kochi	DR P. P. PREMALATHA
Office of the Textile Commissioner, Mumbai	SHRI N. S. RAWAT SHRI B. D. CHATTERJI (*Alternate*)
SRFP Ltd, Chennai	SHRI N. SANTHANAN SHRI R. RAGHVENDRA SAYEE (*Alternate*)
The Karnataka Fisheries Development Corporation Ltd, Bangalore	MANAGING DIRECTOR
The Kerala State Cooperative Federation for Fisheries Development Ltd, Kochi	SHRI P. P. SURENDREN
The Marine Products Export Development Authority, Kochi	SHRI K. J. ANTONY
BIS Directorate General	SHRI M. S. VERMA, Scientist 'F' & Head (TXD) [Representing Director General (*Ex-officio*)]

Member Secretary

SHRI ANIL KUMAR
Joint Director (TXD), BIS

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BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 3375, 2323 9402

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :		Telephone
Central	Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	2323 7617 2323 3841
Eastern	1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700054	2337 8499, 2337 8561 2337 8626, 2337 9120
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